

CLAIMS

Sub 31 → 1. A light source comprising:
a first light source for emitting light of a first color;
a second light source for emitting light of a second color; and
a third light source for emitting light of a third color; characterized in that:

light from said first light source, light from said second light source, and light from said third light source are synthesized by a color synthesizing optical system.

2. The light source device according to claim 1, characterized in that said first color is a color in a region from orange to red, said second color is a color in a region from green to yellow-green, and said third color is a color in a blue region.

3. The light source device according to claim 1 or claim 2, characterized in that said color synthesizing optical system is a dichroic prism.

4. The light source device according to ~~any one of~~ claims 1 to 3, characterized in that said first, second, and third light sources are light emitting diodes.

5. The light source device according to claim 4, characterized in that a plurality of said light emitting diodes are deployed two-dimensionally in said first, second, and third light sources, respectively.

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6. The light source device according to claim 5, characterized in that lenses are deployed between said first, second, and third light sources and said color synthesizing optical system.

7. The light source device according to claim 5, characterized in that lens array elements are deployed between said first, second, and third light sources and said color synthesizing optical system.

8. The light source device according to claim 1 to 3, characterized in that each of said first, second, and third light sources is a planar light source.

9. The light source device according to ~~any one of~~ claims 1 to 3, characterized in that said first, second, and third light sources are flat-panel fluorescent tubes.

10. The light source device according to claim 9, characterized in that prism array elements are deployed between said flat-panel fluorescent tubes and said color synthesizing optical system.

11. The light source device according to claim 9, characterized in that said prism array elements are [each] configured from two mutually perpendicular prism arrays.

12. The light source device according to claim 9, characterized in that a first polarization converter element is deployed between said first light source and said color synthesizing optical system, a second polarization converter element is deployed between said second light source and said

color synthesizing optical system, and a third polarization converter element is deployed between said third light source and said color synthesizing optical system.

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13. The light source device according to claim 12, characterized in that said polarization converter elements are reflecting polarizing plates.

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14. The light source device according to ~~any one of~~ claims 1 to 3, characterized in that said first, second, and third light sources are flat-panel electroluminescent elements.

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15. The light source device according claim 14, characterized in that said electroluminescent elements are organic electroluminescent elements having organic thin films as light emitting layers.

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16. The light source device cited according to claim 14, characterized in that said organic electroluminescent elements comprise optical resonators in light emitting layer structures thereof.

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17. The light source device according to ~~any one of~~ claims 14 to 16, characterized in that a first polarization converter element is deployed between said first light source and said color synthesizing optical system, a second polarization converter element is deployed between said second light source and said color synthesizing optical system, and a third polarization converter element is deployed between said third light source and said color synthesizing optical system.

18. The light source device according to claim 17, characterized in that: said polarization converter elements are configured of quarter-wave films and reflecting polarizing plates; said quarter-wave films are deployed on sides toward said light sources; and said reflecting polarizing plates are deployed on sides toward said color synthesizing optical system element.

13 13 19. The light source device according to ~~any one of~~ claims ~~1 to 18~~, characterized in that said first, second, and third light sources light simultaneously.

14 14 20. The light source device according to ~~any one of~~ claims ~~1 to 18~~, characterized in that said first, second, and third light sources repeatedly light in order.

21. A display device having:

a light modulating element; and

a light source device cited in ~~any one of~~ claims ~~1 to 20~~; characterized in that:

light from said light source device is modulated in said light modulating element; and

light so modulated is magnified by a projection lens and displayed.

22. The display device [according to claim 21], characterized in that: said light modulating element is a transmissive type liquid crystal element; said light source device is deployed opposite one face of said liquid crystal

element; and images formed on said liquid crystal element are magnified by said projection lens and displayed.

17/23. The display device according to claim 22, 14 characterized in that magnified virtual images of images displayed by a liquid crystal display element are viewed.

18/24. The display device according claim 22, 14 characterized in that color filters are formed in pixels configuring said liquid crystal display element.

19/25. The display device according to claim 22, 14 characterized in that said light modulating element is a reflecting type light modulating element, and said light source device is deployed opposite reflecting surface of said light modulating element.

26. A display device having:
a light modulating element; and
a light source device cited in ~~any one of claims 1 to 20~~; characterized in that:

light from said light source device is modulated in said light modulating element;

light so modulated is magnified by a projection lens and displayed as an image;

said light modulating element forms, with time division, a first color component image, a second color component image, and a third color component image;

said first light source in said light source device is lit during time interval wherein said first color component

image is being formed, said second light source in said light source device is lit next during time interval wherein said second color component image is being formed, and said third light source in said light source device is lit next during time interval wherein said third color component image is being formed; and

a color image is displayed by sequential display of said first, second, and third color components in said light modulating element, and by sequential lighting of said first, second, and third light sources corresponding to those sequential displays.

21/ 27. The display device according to claim 26, characterized in that: said light modulating element is a transmissive liquid crystal element; said light source device is deployed opposite one face of said liquid crystal element; and images formed by said liquid crystal element are magnified and displayed by said projection lens.

22/ 28. The display device according to claim 26, characterized in that magnified virtual images of said liquid crystal element are viewed.

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